Amendments to the Claims:

The following listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims:

1. (Currently Canceled)

2. (Currently Canceled)

3. (Currently Canceled)

4. (Currently Amended) ~~The~~ An optical signal receiver ~~according to claim 1, wherein~~ for receiving and frequency-demodulating an optical signal, comprising:

an optical branch circuit for splitting an input optical signal into a first optical signal and a second optical signal;

an optical delay line for delaying the first optical signal;

a first photoelectric conversion circuit for converting the optical signal from the optical delay line into a first electrical signal;

a second photoelectric conversion circuit for converting the second optical signal into a second electrical signal;

a rectangular-wave forming means that outputs a single rectangular-wave signal using the first electrical signal from the first photoelectric conversion circuit and the second electrical signal from the second photoelectric conversion circuit as inputs; and

a smoothing circuit for smoothing the rectangular-wave signal from the rectangular-wave forming means, wherein

the rectangular-wave forming means ~~has~~ comprises:

a first limiter amplifier that limits and amplifies the first electrical signal from the first photoelectric conversion circuit and outputs a first binary signal;

a second limiter amplifier that limits and amplifies the second electrical signal from the second photoelectric conversion circuit and outputs a second binary signal;

an adder circuit that adds the first binary signal from the first limiter amplifier and the second binary signal of the second limiter amplifier and outputs a ternary signal; and

a high level discriminator that discriminates the level of the ternary signal from the adder circuit by comparing its magnitude with a threshold existing between a level when the optical signal is inputted into both the first photoelectric conversion circuit and the second photoelectric conversion circuit and a level when the optical signal is inputted into either the first photoelectric conversion circuit or the second photoelectric conversion circuit and outputs the single rectangular-wave signal.

5. (Currently Amended) ~~The~~ An optical signal receiver ~~according to claim 1, wherein~~ for receiving and frequency-demodulating an optical signal, comprising:

an optical branch circuit for splitting an input optical signal into a first optical signal and a second optical signal;

an optical delay line for delaying the first optical signal;

a first photoelectric conversion circuit for converting the optical signal from the optical delay line into a first electrical signal;

a second photoelectric conversion circuit for converting the second optical signal into a second electrical signal;

a rectangular-wave forming means that outputs a single rectangular-wave signal using the first electrical signal from the first photoelectric conversion circuit and the second electrical signal from the second photoelectric conversion circuit as inputs; and

a smoothing circuit for smoothing the rectangular-wave signal from the rectangular-wave forming means, wherein

the rectangular-wave forming means ~~has~~ comprises:

a first limiter amplifier that limits and amplifies the first electrical signal from the first photoelectric conversion circuit and outputs a first binary signal;

a second limiter amplifier that limits and amplifies the second electrical signal from the second photoelectric conversion circuit and outputs a second binary signal;

an adder circuit that adds the first binary signal from the first limiter amplifier and the second binary signal of the second limiter amplifier and outputs a ternary signal; and

a low level discriminator that discriminates the level of the ternary signal from the adder circuit by comparing its magnitude with a threshold existing between a level when the optical signal inputted into both the first photoelectric conversion circuit and the second photoelectric conversion circuit and a level when the optical signal is inputted into neither the first photoelectric conversion circuit nor the second photoelectric conversion circuit and outputs the single rectangular signal.

6. (Currently Canceled)

7. (Currently Canceled)

8. (Currently Canceled)

9. (Currently Amended) ~~The~~ An optical signal receiving equipment ~~according to claim 6~~ for receiving and frequency-demodulating an optical signal, comprising:

(1) an optical branch device that splits an input optical signal into N signals, and

(2) N optical signal receivers,

where N is an integer of two or more, and

where each of the optical signal receivers comprises:

an optical branch circuit that splits the optical signal from the optical branch device into a first optical signal and a second optical signal;

an optical delay line for delaying the first optical signal;

a first photoelectric conversion circuit for converting the optical signal from the optical delay line into a first electrical signal;

a second photoelectric conversion circuit for converting the second optical signal into a second electrical signal;

rectangular-wave forming means for forming a single rectangular-wave signal using the first electrical signal from the first photoelectric conversion circuit and the second electrical signal from the second photoelectric conversion circuit as inputs; and

a smoothing circuit for smoothing the rectangular-wave signal from the rectangular- wave forming means; and

(3) an inphase combiner that combines N smoothed rectangular-wave signals outputted from the N optical signal receivers, respectively, being in phase with one another,

wherein the rectangular-wave forming means of the optical signal receiver ~~has~~ comprises:

a first limiter amplifier that limits and amplifies the first electrical signal from the first photoelectric conversion circuit and outputs a first binary signal;

a second limiter amplifier that limits and amplifies the second electrical signal from the second photoelectric conversion circuit and outputs a second binary signal;

an adder circuit that adds the first binary signal from the first limiter amplifier and the second binary signal from the second limiter amplifier and outputs a ternary signal; and

a high level discriminator that discriminates the level of the ternary signal from the adder circuit by comparing its magnitude with a threshold existing between a level when the optical signal is inputted into both the first photoelectric conversion circuit and the second photoelectric conversion circuit and a level when the optical signal is inputted into either the first photoelectric conversion circuit or the second photoelectric conversion circuit and outputs the single rectangular signal.

10. (Currently Amended) ~~The~~ An optical signal receiving equipment ~~according to claim 6~~ for receiving and frequency-demodulating an optical signal, comprising:

(1) an optical branch device that splits an input optical signal into N signals; and

(2) N optical signal receivers,

where N is an integer of two or more, and

where each of the optical signal receivers comprises:

an optical branch circuit that splits the optical signal from the optical branch device into a first optical signal and a second optical signal;

an optical delay line for delaying the first optical signal;

a first photoelectric conversion circuit for converting the optical signal from the optical delay line into a first electrical signal;

a second photoelectric conversion circuit for converting the second optical signal into a second electrical signal;

rectangular-wave forming means for forming a single rectangular-wave signal using the first electrical signal from the first photoelectric conversion circuit and the second

electrical signal from the second photoelectric conversion circuit as inputs; and

a smoothing circuit for smoothing the rectangular-wave signal from the rectangular-wave forming means; and

(3) an inphase combiner that combines the N smoothed rectangular-wave signals outputted from the N optical signal receivers, respectively, being in phase with one another,

wherein the rectangular-wave forming means of the optical signal receiver ~~has~~ comprises:

a first limiter amplifier that limits and amplifies the first electrical signal from the first photoelectric conversion circuit and outputs a first binary signal;

a second limiter amplifier that limits and amplifies the second electrical signal from the second photoelectric conversion circuit and outputs a second binary signal;

an adder circuit that adds the first binary signal from the first limiter amplifier and the second binary signal from the second limiter amplifier and outputs a ternary signal; and

a low level discriminator that discriminates the level of the ternary signal from the adder circuit by comparing its magnitude with a threshold existing between a level when the optical signal is inputted into either the first photoelectric conversion circuit or the second photoelectric conversion circuit and a level when the optical signal is inputted into neither the first photoelectric conversion circuit nor the second photoelectric conversion circuit and outputs the single rectangular signal.

11. (Currently Canceled)

12. (Currently Canceled)

13. (Currently Canceled)

14. (Currently Amended) ~~The~~ An optical signal transmission system ~~according to claim 11, wherein~~ using an FM batch conversion method, comprising:

(1) an optical signal transmitter equipped with an FM batch conversion circuit; and

(2) an optical signal receiver having:

an optical branch circuit that is connected with the optical signal transmitter through an optical transmission path and splits an optical signal from the optical signal transmitter into a first optical signal and a second optical signal;

an optical delay line for delaying the first optical signal;

a first photoelectric conversion circuit for converting the optical signal from the optical delay line into a first electrical signal;

a second photoelectric conversion circuit for converting the second optical signal into a second electrical signal;

rectangular-wave forming means for outputting a single rectangular-wave signal using the first electrical signal from the first photoelectric conversion circuit and the second electrical signal from the second photoelectric conversion circuit as inputs and outputs a single rectangular-wave signal; and

a smoothing circuit for smoothing the rectangular-wave signal from the rectangular-wave forming means,

the rectangular-wave forming means of the optical signal receiver ~~has~~ comprising:

a first limiter amplifier that limits and amplifies the first electrical signal from the photoelectric conversion circuit and outputs a first binary signal;

a second limiter amplifier that limits and amplifies the second electrical signal from the photoelectric conversion circuit and outputs a second binary signal;

an adder circuit that adds the first binary signal from the first limiter amplifier and the second binary signal from the second limiter amplifier and outputs a ternary signal; and

a high level discriminator that discriminates the level of the ternary signal from the adder circuit by comparing its magnitude with a threshold existing between a level when the optical signal is inputted into both the first photoelectric conversion circuit and the second photoelectric conversion circuit and a level when the optical signal is inputted into either the first photoelectric conversion circuit or the second photoelectric conversion circuit and outputs the single rectangular signal.

15. (Currently Amended) ~~The~~ An optical signal transmission system ~~according to claim 11, wherein~~ using an FM batch conversion method, comprising:

(1) an optical signal transmitter equipped with an FM batch conversion circuit; and

(2) an optical signal receiver having:

an optical branch circuit that is connected with the optical signal transmitter through an optical transmission path and splits an optical signal from the optical signal transmitter into a first optical signal and a second optical signal;

an optical delay line for delaying the first optical signal;

a first photoelectric conversion circuit for converting the optical signal from the optical delay line into a first electrical signal;

a second photoelectric conversion circuit for converting the second optical signal into a second electrical signal;

rectangular-wave forming means for outputting a single rectangular-wave signal using the first electrical signal from the first photoelectric conversion circuit and the second electrical signal from the second photoelectric conversion circuit as inputs and outputs a single rectangular-wave signal; and

a smoothing circuit for smoothing the rectangular-wave signal from the rectangular-wave forming means;

the rectangular-wave forming means of the optical signal receiver ~~has~~ comprising:

a first limiter amplifier that limits and amplifies the first electrical signal from the first photoelectric conversion circuit and outputs a first binary signal;

a second limiter amplifier that limits and amplifies the second electrical signal from the second photoelectric conversion circuit and outputs a second binary signal;

an adder circuit that adds the binary signal from the first limiter amplifier and the binary signal from the limiter amplifier and outputs a ternary value signal; and

a low level discriminator that discriminates the level of the ternary signal from the adder circuit by comparing its magnitude with a threshold existing between a level when the optical signal is inputted into either the first photoelectric conversion circuit or the second photoelectric conversion circuit and a level when the optical signal is inputted into neither the first photoelectric conversion circuit nor the second photoelectric conversion circuit and outputs the single rectangular signal.

16. (Currently Amended) The optical signal transmission system according to ~~any of claims 11 through 15~~ claim 14, wherein

the optical signal transmitter further comprises a predistortion circuit that adds beforehand a distortion inverse to a distortion that the FM batch conversion circuit generates.

17. (New) The optical signal transmission system according to claim 15, wherein the optical signal transmitter further comprises a predistortion circuit that adds beforehand a distortion inverse to a distortion that the FM batch conversion circuit generates.